Portfolios in CTS: What, Why and How

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Portfolios in CTS: What, Why and How

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This document is intended primarily for:
Career and Technology Studies Teachers
System and School Administrators
Guidance Counselors
Teachers

And may be of interest to:
Parents
Post-Secondary Institutions
Community Members

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Overview

The development of a portfolio in CTS allows for individual student ownership of their learning in a curricular area that is competency based. It permits students to see and better understand what they have learned and perhaps assist in further developing a personal focus to their learning. It also provides CTS teachers a window or viewing of the work completed by a student within a semester or year and provides an opportunity to reflect upon student growth and achievement and overall program continuous improvement.

A portfolio is a self-determined and/or collaborative collection of student work that identifies the student's efforts, progress, and achievements. It is a performance based assessment tool presenting a collection of student work over a period of time. It is used for evaluation by demonstrating how and what the student is learning. The collection of student work may include the following:

- Student participation in selecting portfolio contents
- Criteria for selection of contents
- Criteria for judging merits of the contents
- Evidence of a student's self-reflection
- Samples of student work

It may represent a collection of students' best work or best efforts showing growth over time, student-selected samples of work experiences related to outcomes being assessed and documents according growth and development toward mastering identified outcomes.

Many school jurisdictions in Alberta already have developed portfolio use in a variety of curricular areas indicating that portfolios may be assessment tools applicable in a variety of areas. Portfolios have been used at the elementary and junior high levels for many years and some high schools have as well. The expertise and leadership that this initiative has created may provide a window of opportunity for CTS to further use this assessment tool and highlight the many positive aspects of the CTS program that already exist in high schools.

Portfolios may be viewed as a tool to assist in the process of continuous improvement, allowing for further reflection upon student abilities and program development. Portfolios take discipline on the part of teachers to use effectively and efficiently and require the "buy-in" by students.

Purpose of Developing Student Portfolios in CTS

Portfolios can assist the assessment process by highlighting a range of skills and understandings demonstrated by the growth of students through a particular CTS course, or pathway and their overall educational career and life experiences. CTS teachers may use portfolios for a variety of specific purposes, including:

- Encouraging self-directed learning
- Enlarging the student's understanding of what has been learned and how it has been learned

- Fostering learning about their own learning
- Demonstrating progress toward identified outcomes in the CTS program
- Creating a bridge between instruction and individual assessment
- Providing a way for students to value themselves as learners

Although approaches to portfolio development may vary, portfolio use reinforces the following characteristics[1]:

- *They clearly reflect stated learner outcomes identified in the core or essential curriculum that students are expected to study.*
- *They focus upon students' performance-based learning experiences as well as their acquisition of key knowledge, skills, and attitudes.*
- *They contain samples of work that stretch over an entire marking period, rather than single points in time.*
- *They contain works that represent a variety of different assessment tools.*
- *They contain a variety of work samples and evaluations of that work by the student, peers, and teachers, possibly even parents' reactions.*

Portfolios assist CTS teachers in further developing performance assessment practices to further the development of students. Portfolios may allow students to better reflect upon their learning and further develop the desire to learn that must come from within the learner through a balance of formative (i.e. ongoing) and summative (i.e. culminating) opportunities.[2]

The format in which portfolios are created can be hardcopy or electronic depending upon student needs, desired portfolio contents and the ability of the CTS teacher to deal with different formats.

Electronic Portfolios

An electronic portfolio simply means that the portfolio is technology based. There are many different types of electronic portfolios, allowing for flexibility so that the CTS teacher can focus upon and measure a specific skill or concept.

With an electronic portfolio, information can be easily stored in a computer hard drive, flash drive, CD, DVD, USB key or other storage device. Electronic portfolios not only take up little physical space, but can hold a great deal of information. Pictures, drawings and written work can be all be scanned in and saved, along with videos, music and recorded audio descriptions of the desired items. Work samples from different stages of project completion could also be used. Another important addition would be collaborative student work on shared CTS projects that otherwise would not be able to be included in each participating students' portfolio.

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[1] Paul S. George. (1995). *What Is Portfolio Assessment Really and How Can I Use It in My Classroom?* Gainesville, Florida: Teacher Education Resources, as referenced on the Prince George's County Public Schools website: www://www.pgcps.pg.k12.md.us/~elc/portfolio.

[2] S. Chappuis, R. Stiggins, J. Arter and J. Chappuis. (2005). *Assessment for Learning: An Action Guide for School Leaders*. Educational Testing Service. Portland, Oregon. P.40.

Approaches to Developing Student Portfolios in CTS

There are many different types of portfolios, each of which can serve one or more specific purpose as part of an overall school or classroom assessment program in CTS. Each type has a specific intent; however it is very reasonable to combine portfolio characteristics to create a "hybrid" model that best meets the needs of the individual CTS teacher and the individual student. It may be best to first examine a few different portfolio models that may be appropriate for use in CTS that will then answer the "how" question.

The Alberta Teachers' Association (ATA) currently offers a workshop for teacher professional learning: Stu*dent Portfolios – Beyond the Scrapbook*. This workshop is appropriate for CTS and provides teachers with a foundational understanding of *growth* portfolios and is a model for portfolio development in all subject areas, including CTS.

The following is a description of two portfolio types that have desirable characteristics for student use in CTS:

Growth Portfolio

The Growth Portfolio is also known as a "working" portfolio. Specifically, this model involves a collection of work over time showing growth and improvement reflecting students' learning of identified outcomes and is formative in nature (i.e. throughout an instructional time period such as a semester). The growth portfolio can include everything from diagrams to drafts to finished products. The collection becomes meaningful when specific items are selected to focus on particular experiences or goals. A growth portfolio should:

- Show growth or change over time
- Help develop process skills such as self-evaluation and goal-setting
- Identify strengths and weaknesses
- Track the development of one more products in CTS

Showcase Portfolio

A Showcase Portfolio is used for summative (i.e. culminating) assessment of students' mastery of key curriculum outcomes. It should include students' very best work, determined through a combination of student and teacher selection. The primary difference between a showcase portfolio and a growth portfolio is that only completed work should be included in a showcase portfolio. In addition, this type of portfolio is especially useful with digital development, including photographs, videotapes, and electronic records of students' completed work. The showcase portfolio should also include written analyses and reflections by the student upon the decision-making processes used to determine which items they included. A showcase portfolio should:

- Highlight end-of-program or semester accomplishments
- Prepare a sample of best work for further use for employment or post-secondary
- Showcase student perceptions of favorite, best or most important work completed

Selection of an Appropriate Portfolio Model for CTS

This question may best be answered by looking at what each portfolio model is intended for:

- The growth portfolio emphasizes the process of learning
- The showcase portfolio emphasizes the products of learning
- The "hybrid" model that includes elements of a growth and a showcase portfolio

A portfolio may include components from more than one type of portfolio. For example, a showcase portfolio might be used for evaluation purposes through the course of a semester or pathway and a growth portfolio might also showcase "final" products. **What is critical is that the purpose(s) is/are clear throughout the process to student, CTS teachers and any other possible audience (i.e. parents).** A growth portfolio may include components that will be later placed into a showcase portfolio.

> *"A growth portfolio is a purposeful collection of a student's work that shows growth over time as opposed to a scrapbook of random samples of work."*[3]

Selection of Contents

Identifying the purpose(s) for the portfolio should drive the process for selecting the contents of the portfolio. Different samples of student work will likely be selected for different purposes. Additionally, how samples are selected might also differ depending on the purpose. For example, for a growth portfolio, the CTS teacher might decide which samples need to be included to evaluate student progress. A showcase portfolio might be designed to include significant input from the student on which samples best highlight achievement and progress or the CTS teacher might primarily make those decisions. At the time when a sample of work is completed the student or CTS teacher identifies that work for inclusion in the portfolio or at periodic intervals instead of selecting samples when they are completed, the samples can be stored so that selection might occur at regular intervals that are pre-determined.

Students may perhaps be the most appropriately positioned selectors, particularly for portfolios that ask them to reflect on the work selected. Which work students select depends on the criteria used to choose each piece. CTS teachers may be the selector, particularly when identifying best pieces of work to showcase a student's strengths or accomplishments. Portfolio selection may also be a joint process involving conversations and collaboration between the CTS teacher and student.
http://jonathan.mueller.faculty.noctrl.edu/toolbox/portfolios.htm - top#top
Selection of material for growth portfolios may focus on identifying samples of work and work processes (e.g., drafts, notes, diagrams, pictures of work in progress) that best capture progress shown on designated tasks, processes or acquisition of knowledge and skills. For example, students might be asked to choose:

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[3] *Students and teachers take stock with portfolios.* Edmonton Journal. Sunday, October 5, 2008. Section B P. 8.

- Samples of earlier and later work highlighting some skill or content area
- Samples of rough diagrams and final work
- Work that traces the development of a particular project
- Samples of work reflecting specifically identified strengths and weaknesses
- Evidence of achievement

For showcase portfolios, material selection might focus on:

- Samples of work that illustrate current levels of competence in specific areas or particular examples of quality work
- Samples of work that illustrate how successfully students have met certain standards
- Favorite or most important piece of work

A portfolio can include samples of work for multiple reasons and more than one of the above criteria could be used for selecting samples to be included as referenced in the following two tables:

Considerations for Developing a Growth Portfolio

Component Intent	Some Possible Items for Inclusion
Show growth or change over time	• Early and later pieces of work • Early and later tests/scores • Rough drafts and final drafts • Reflections on growth • Goal-setting sheets • Reflections on progress toward goal(s)
Help develop process skills	• Samples which reflect growth of process skills • Self-reflection sheets accompanying samples of work • Reflection sheets from the CTS teacher • Identification of strengths/weaknesses • Goal-setting sheets • Reflections on progress towards goal(s)
Identify strengths/weaknesses	• Samples of work reflecting specifically identified strengths and weaknesses • Reflections on strengths and weaknesses of samples • Goal-setting sheets • Reflection on progress towards goal(s)
Track development of one or more products	• Drafts of the specific product to be tracked • Self-reflections on drafts • Reflection sheets from the CTS teacher

Considerations for Developing a Showcase Portfolio

Component Intent	Some Possible Items for Inclusion
Showcase end-of-program or semester accomplishments	• Samples of best work • Samples of earlier and later work to document progress • Final tests or scores • Discussion of growth over semester or program • Awards or other recognition • CTS teacher or possibly peer comments
Prepare a sample of best work for employment or post-secondary application	• Cover letter • Sample of work • Reflection on process of creating sample of work • Reflection on growth • CTS teacher and/or peer comments • description of knowledge/skills work
Showcase student perceptions of favorite, best or most important	• samples of student's favorite, best or most important work • Drafts of that work to illustrate path taken to its final form • Commentary on strengths/weaknesses of work • Reflection on why it is favorite, best or most important • Reflection on what has been learned from work • CTS teacher or possibly peer comments
Communicate a student's current aptitude	• Sample of current work • Match work with standards accomplished • Self-reflection on current aptitudes • CTS teacher reflection on student's aptitudes • Identification of future goals

All portfolio models considered should include a cover page and a table of contents for ease of content reference.

Stages of Portfolio Development

There are three key stages involved with the development of any portfolio type. As with anything used in any classroom, prior planning and investigation of appropriate strategies is important to the end product that a student creates.

1. Organization and Planning

This initial phase of portfolio development entails decision-making on the part of students and CTS teachers. By exploring essential questions at the beginning of the process, students can fully understand the purpose of the portfolio and its status as a means of monitoring and evaluating their own progress.

Key questions for the CTS teacher and the student must include:

- How do I select times, materials, etc. to reflect what I am learning in this course or pathway?
- How do I organize and present the items, materials, etc. that I have collected?
- How will portfolios be maintained and stored?

2. Collection

This process involves the collection of meaningful items and products reflecting students' educational experiences and goals. Decisions must be made at this stage about the context and contents of the portfolio based upon the intent and purposes identified for it. The selection and collection of items and products should be based upon a variety of factors that can include:

- Particular subject matter
- A learning process
- Special projects, courses and/or pathways

All selections included in the collection should clearly reflect the criteria and standards identified for evaluation. The answer to the question of content is dependent upon the answers to the questions of purpose and audience. Paper products such as drawings, descriptions, pictures are possible including other types of media such as: audio and videotapes, CDs, DVDs, two- and three-dimensional pieces of work, posters and anything else that can reflect the purposes identified may be included.

The CTS teacher and student have to decide what is manageable. But if the most meaningful evidence of the portfolio's goals cannot be captured on paper then other types of media may need to be considered as noted in the section on *Electronic Portfolios.*

3. Reflection on Samples of Work

Wherever possible, there should be evidence of students' reflections upon the learning process and their monitoring of their comprehension of key knowledge and skills. These reflections can take the form of journals and other forms of reflections upon their experiences and include the thinking processes they have used at given points in time and across time periods.

Selecting samples of work as described above can produce meaningful stories about students, and others can benefit from "reading" these stories. But the students themselves are missing significant benefits of the portfolio process if they are not asked to reflect upon the quality and growth of their work.

In the reflection phase students may be asked to:

- Comment on why specific components were selected
- Comment on what they liked and did not like in the components
- Comment on or identify the processes involved in developing specific projects
- Describe and point to examples of how specific skills or knowledge improved
- Identify strengths and weaknesses in samples of work
- Set goals for themselves corresponding to the strengths and weaknesses
- Assess their past and current capabilities for a skill

The possibilities for reflection questions to pose to students in CTS are many. Some possible examples are:http://jonathan.mueller.faculty.noctrl.edu/toolbox/portfolios.htm - top#top

- Why did you select this particular work?
- How does this meet the criteria for selection for your portfolio?
- What are the strengths of this work? Weaknesses?
- One skill I could not perform very well when I started the semester but now I can
- What is one thing you can improve upon in this piece?
- What is a realistic goal for the end of the semester or year?
- What do you like or not like about this piece of work?
- What would you like your parents to know about in your portfolio?
- What does the portfolio as a whole reveal about you?

As mentioned above, students can respond to such questions or prompts when a piece of work is completed, while a work is in progress or at periodic intervals after the work has been collected. These questions or prompts can be answered by the student, the CTS teacher and possibly parents in any combination that best serves the purposes of the student and the portfolio.http://jonathan.mueller.faculty.noctrl.edu/toolbox/portfolios.htm - top#top

Assessment of Portfolios

Portfolio assessment is a process characterized by several things:

- It is continuous and ongoing, providing both formative (i.e. ongoing) and summative (i.e. culminating) opportunities for monitoring students' progress toward achieving essential outcomes in CTS
- It is multidimensional (i.e. reflecting a wide variety of resources reflecting various aspects of students' learning processes in CTS)
- It provides for collaborative reflection, including ways for students to reflect about their own thinking processes, monitor their own comprehension, reflect upon their approaches to problem-solving and decision-making and observe the emerging understanding of their skills and abilities in CTS

It is especially important for teachers and students to work together to prioritize those criteria that will be used as a basis for assessing and evaluating student progress, both formatively (i.e. throughout an instructional time period such as a semester) and

summatively (i.e. as part of a culminating project, activity, or related assessment to determine identified CTS curricular competencies).

As the school year or semester progresses, students and the CTS teacher can work together to identify especially significant or important items and processes to be captured in the portfolio. They can work collaboratively to determine grades or scores to be assigned. Rubrics, rules, and scoring keys can be designed for a variety of portfolio components.

In order for thoughtful and valid assessment to take place, CTS teachers must have multiple scoring strategies to evaluate students' progress. Criteria for a finished portfolio might include several of the following:

- Thoughtfulness (including evidence of students' monitoring of their own comprehension, reflections and work habits)
- Growth and development in relationship to key curriculum expectancies and indicators
- Understanding and application of key processes
- Completeness, correctness, and appropriateness of projects and processes presented in the portfolio
- Diversity of entries (i.e. use of different formats to demonstrate achievement of designated performance standards)

In order to properly address the area of portfolio assessment in CTS, the CTS teachers, school administration and perhaps teaching staff from other curricular areas, need to consider several questions:

1. In what areas of our current approach to assessment and evaluation of student progress are we lacking essential information or instruments?
    - How might a portfolio assessment process complement or address our current approach in CTS?
2. What are the major behaviors, outcomes or behavioral indicators that form the basis for the CTS curriculum during a specific period of time (i.e. a semester, a pathway, etc.)?
    - Which of the CTS outcomes can be assessed most effectively using a portfolio approach?
3. As students learn the essential knowledge and skills we have identified, what observable behaviors will give us evidence of their learning and their progress in achieving identified competencies in CTS?
4. What are the primary activities that can be designed to provide evidence of students' mastery of essential skills, knowledge and competencies?
    - Which of these activities might be appropriate for purposes of assessment?
5. How should we score both individual portfolio elements and the portfolio as a whole?
    - Do we have available to us rubrics, rules, scoring keys, and/or checklists that may guide and inform this process?
6. How can we ensure that students understand the purpose and process involved in developing and maintaining a portfolio?
7. How can we involve parents in the portfolio assessment process?

- Is this a necessary component?
- Will it add value to the learning opportunities?

Clear criteria for the use of rubrics in the assessment of the outcomes and goals identified by the contents of a portfolio need to be developed and understood by all involved early in the process. The CTS teacher and student need to practice discipline and planning effectively and efficiently in order to fully develop the potential for this performance assessment tool.

The school teaching staff as a collective may wish to be included in this discussion since the development of a portfolio will use knowledge and skills that are used and developed in other curricular areas over the course of a student's school career. The integration of skills from Language Arts, Math, sciences and performance areas such as Drama may potentially be part of the construction of a portfolio in CTS.

Presentation
The completion of any school-based assignment involves a determination by the classroom teacher and/or students regarding the method of presentation. A portfolio may simply be handed-in to the CTS teacher or a more formal presentation may be developed for this. This is an opportunity to include parents in the process and further highlight the strengths and opportunities for learning and growth present within the CTS classroom, assisting in making stronger connections with the community.

Portfolio Ownership
The question of ownership of the portfolio contents is something that has been discussed and debated in education for many years. Ownership of the document, whether in hardcopy or electronic form, must be clearly understood by all participants prior to undertaking the task of portfolio construction.

It may be reasonable for the CTS teacher and the school to indicate that the contents of a portfolio are owned by the student and will be returned to them at the end of the assessment period, which is usually the situation for any assignment in any curricular area. If the CTS teacher or the school wishes to use components of a portfolio or the entire portfolio itself for display or other exemplar purposes, permission should be sought from the student who constructed the portfolio. Again, this is a similar process for any assignment or project in any curricular area.

All aspects of portfolio development require clear and concise communication on behalf of all participants involved. Communication is essential to ensure that the end product of portfolio development addresses all aspects of the intended outcomes and that all parties involved clearly understand their roles and responsibilities.

Risks Involved in the Development of Portfolios
It is stated in different areas of this document that the goals and objectives for the development and use of portfolios must be clearly understood by students and teachers

from the onset. Portfolios require very careful planning and logistical supports in order to realize their value for the assessment of and for student learning.

It is necessary to carefully consider the limitations that will need to be placed upon student development of portfolios in order to prevent this assessment tool from becoming too burdensome for the teacher and student. There is the possibility that in the need to collect and document the list of items that a student may determine to be desirable to include in a portfolio, that the collection may become too extensive and too in-depth and surpass the original assessment tool guidelines.

In order for portfolios to be well-designed assessments that benefit the student and teacher, time and effort is required in order to plan the process as completely as possible. It is possible that portfolios can serve to structure and guide the work of students and teachers, as with all assessment tools. By clearly stating the objectives for portfolios in a program, this assessment tool will assist in ensuring student success in CTS.

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